

phosphides and combination thereof; two Q's together form an alkylidene ligand or cyclometallated hydrocarbyl ligand or other divalent anionic chelating ligand; where g is an integer corresponding to the formal oxidation state of Hf, d is 0, 1, 2, 3, 4, or 5, f is 0 or 1 and e is 1, 2, or 3, and the polymer product has a melt index less than 10 dg/min (ASTM D-1238-F or ASTM D-1238-E) without the addition of hydrogen to the process.

REMARKS

Reconsideration of the above-identified application, in view of the above amendments and remarks below, is respectfully requested.

Claims 10 to 14, 16 to 23, 25 to 32 and 51 to 57 are before the Examiner. Claims 10, 16, 17, 21, 26, 28, 31, 52, and 53 have been amended.

Claims 10 to 12, 14, 16, 19, 28 to 30, 51, 52, 55 and 56 stand rejected under 35 U.S.C. 103(a) as being unpatentable in view of Harrington (U.S. 5,621,054). The rejection is respectfully traversed.

In response, the Examiner has acknowledged that applicant's comparative examples illustrate unexpectedly greater activity. Harrington is directed to a process of making cyclic olefin copolymers of high crystalline melting point. Applicant has amended claim 10 to further define the invention as a process for polymerizing ethylene and one or more α -olefin(s) comonomer. Withdrawal of this rejection is respectfully requested.

Claims 10 to 14, 16, 17, 20, 27 to 32, 51 to 54, 56 and 57 stand rejected under 35 U.S.C. 103(a) as being unpatentable in view of Doyle (U.S. 5,387,660). The rejection is respectfully traversed.

In response, applicant states that that the only group specially recited in Doyle, other than in the working examples is "methyl". (See Col. 3, lines 58 specifically referring to "pentamethylcyclopentadienyl). Doyle's process is directed to the addition of more catalyst component when the process activity decreases. Doyle does not teach a process comprising the catalysts recited in the claims with the expectation of obtaining a highly active polymerization process. In addition, the Examiner has acknowledged that applicant's comparative examples, which employ a methyl group, illustrate unexpectedly greater activity. Withdrawal of this rejection is respectfully requested.

Claims 10 to 14, 16 to 23, 25, 26, 28 to 31 and 51 to 57 have been rejected under 35 U.S.C.103(a) as being unpatentable in view of Jejelowo (U.S. 5,281,679). The rejection is respectfully traversed.

In response, as above, the Examiner acknowledged that applicant's comparative examples illustrate unexpectedly greater activity. The examples of Jejelowo having the substituents that fall within the definition of Applicants' substituents evidence lower activity than the remaining examples. For example, a compound using a t-butyl obtains a catalyst rate of

0.671, 1.001 and 0.92,1 whereas the compounds using iso-propyl obtains catalyst rates of 0.158, 0.225, 0.233. An ordinary practitioner in the art reading such a disclosure would not be motivated to utilize Applicants' substituents, naturally expecting to obtain lower activities. Withdrawal of this rejection is respectfully requested.

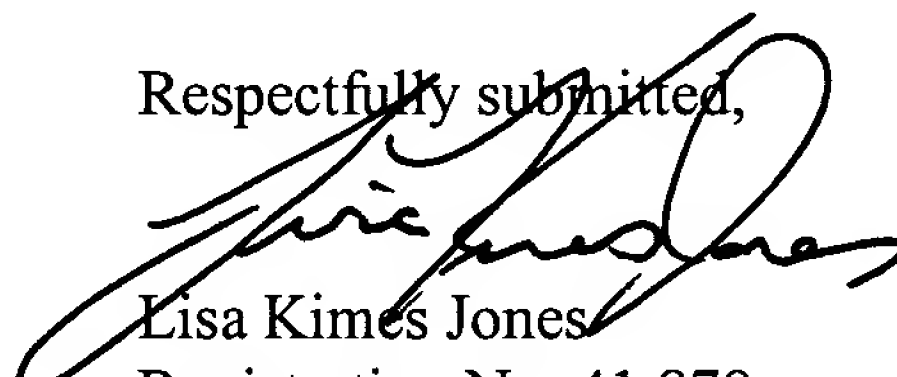
Claims 18, 19, 21-23, 25 and 26 have been rejected as unpatentable over Doyle, optionally in view of U.S. Patent No. 5,714,426 to Tsutsui et al (Tsutsui). This rejection is respectfully traversed.

Specifically, the Examiner states that Doyle discusses all aspects of the claimed invention except for the use of a supported catalyst and the use of gas phase conditions. In response, applicant states that Doyle does not discuss increasing catalytic activity of hafnocenes by use of the substituents recited in the instant claims. Doyle does not mention a single substituent in the general disclosure except for methyl. In the examples of Doyle the only substituents employed are methyl and t-butyl, both being outside the scope of Applicants' claimed invention. It should also be noted that Tsutsui lists many hafnocenes, however, Tsutsui does not list hafnocenes that falls within the definition of Applicants' claimed invention. In any event, Tsutsui do not solve the deficiency in Doyle. At most, one would employ the process conditions of Tsutsui with the catalyst systems of Doyle. Therefore, withdrawal of this rejection is also respectfully requested.

The applicant wishes to thank the Examiner for the courtesy shown during the prosecution of this case, and for the telephonic interview. In light of the above amendments and remarks, applicant believes this application is now in condition for allowance.

Should the Examiner have any questions or require any additional information please contact the undersigned.

Respectfully submitted,



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